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# DAILY CURRENT AFFAIRS

31 August 2024



## SOURCES



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## GS I

# 1. Cyclone Asna Forms Over Kutch; Heavy Rain Hits Gujarat

**Source:** The Hindu

**Context:** Cyclone Asna has formed over the Kutch coast in Gujarat and adjoining areas of Pakistan, marking a rare occurrence of a land-originating storm in August.

**Cyclone Asna:**

- **Occurrence:** First August cyclonic storm in the Arabian Sea since 1976. The name "Asna," meaning "the one to be acknowledged or praised," was given by Pakistan.
- **Historical Context:** Only three cyclonic storms in the Arabian Sea between 1891 and 2023 (in 1976, 1964, and 1944).
- **Rainfall Pattern:**
  - **Light to moderate:** Gujarat
  - **Heavy to very heavy:** Kutch and parts of Saurashtra.

**Low-Pressure System:**

- **Location:** Bay of Bengal off north Andhra Pradesh and south Odisha.
- **Forecast:** Expected to move west-northwest and intensify into a depression with light rain anticipated in the affected states.

**Impact on Gujarat:**

- **Rainfall and Damage:** Torrential rains have caused severe flooding.
- **Emergency Response:** Security forces have used helicopters for evacuations. The State Emergency Operation Centre (SEOC) reports 111% of the average rainfall so far, with significant regional variations.
- **Vadodara:** The worst-hit city has seen some relief, with water levels in the Vishwamitri river.

**Overall Rainfall Trends:**

- **Excessive Rainfall:** August rainfall has been significantly higher than IMD forecasts, impacting various regions across the country.

# 2. Lakhpati Didi Sammelan: Rural Women Empowerment

**Source:** PIB

**Context :** The Prime Minister celebrated the achievements of rural women at the Lakhpati Didi Sammelan in Maharashtra, recognizing their success through Self-Help Groups (SHGs).

**Key Highlights**

- **Recognition:** 11 lakh women awarded certificates for achieving an annual income of over ₹1 lakh.



- **Financial Support:** ₹2,500 crore released as a revolving fund and ₹5,000 crore in bank loans disbursed to SHG members.
- **Economic Role:** Emphasised women's contribution to rural economic growth and national development.

#### Lakhpati Didi Initiative

- **Objective:** Empower SHG members achieving annual incomes of ₹1 lakh or more.
- **Strategy:** Offers diversified livelihood options, financial support, skills training, and market access.

#### Achievements

- **Impact:** Created one crore Lakhpati Didis; target increased to three crore.
- **Funding:** Over ₹6,000 crore allocated to SHGs.

#### Related Initiatives

- Pradhan Mantri Mudra Yojana
- Mahila E-Haat
- Pradhan Mantri Awas Yojana
- Mission Shakti
- Nari Shakti Puraskar

## 3. Formation of 5 New Districts in Ladakh

**Source:** The Indian Express

**Context:** The Ministry of Home Affairs has granted "in-principle approval" for the creation of five new districts in Ladakh, increasing the Union Territory's total districts to seven.

**Administrative Improvement:** Ladakh, one of India's largest and sparsely populated Union Territories, previously had only two districts—**Leh and Kargil**.

**Geopolitical Importance:** Ladakh's strategic location has made it a focal point for development efforts, particularly in enhancing civilian and military infrastructure.

#### New Districts:

- The five new districts are **Zaskar, Drass, Sham, Nubra, and Changthang**.
- The move is part of efforts to bring governance closer to the people, ensuring that benefits and services reach even the most remote areas of Ladakh.

**Developmental Context:**

#### Ladakh's existing and new district headquarters

This map shows the locations of the district headquarters, including for the newly created districts of Zaskar, Drass, Sham, Nubra and Changthang

Boundaries of existing districts  
■ Kargil ■ Leh



- The creation of new districts aligns with the Prime Minister's Development Package (PMDP), which includes significant funding and infrastructure projects aimed at the region's growth.

#### **Political and Public Reactions:**

- While the move has been welcomed by many, there are calls for greater political representation and functional autonomy in these new districts, similar to the Autonomous Hill Development Councils in Leh and Kargil.

#### **Understanding District Creation in India:**

- The power to create, alter, or abolish districts lies with State governments, typically done through an executive order or legislation in the State Assembly.
- As of 2024, India has 718 districts, with a trend towards creating smaller districts for improved governance.

## **GS II**

### **4. LGBTQIA+ Couples Can Now Open Joint Bank Accounts: Centre**

**Source:** The Hindu

**Context:** The Union government has issued an advisory permitting LGBTQIA+ couples to open joint bank accounts and nominate each other as beneficiaries, in response to a Supreme Court directive from nearly a year ago.

#### **Government Advisory**

- The advisory clarifies that LGBTQIA+ individuals cannot be denied the right to open joint bank accounts or nominate their partners as beneficiaries.
- This decision aligns with the Supreme Court's October 2023 judgment, which, while not recognizing same-sex marriage, urged the government to provide equal entitlements to LGBTQIA+ couples.
- **Banking Sector Response:**
  - Some private banks, such as Axis Bank, had already allowed LGBTQIA+ couples to open joint accounts and nominate beneficiaries since September 2021.

#### **Government Actions**

- **Committee Formation:** Six-member committee to define and expand entitlements for LGBTQIA+ couples.

#### **Impact**

- **Clarification and Inclusion:**
  - The advisory marks a significant step towards equal financial rights for LGBTQIA+ couples, enhancing their ability to manage and designate their financial assets



## GS III

### 5. At 6.7%, growth slid to five-quarter low in Q1

Source: The Hindu

**Context:** India's real GDP growth for Q1 FY2024 slowed to 6.7%, the lowest in five quarters and below the RBI's 7.1% expectation. This follows a 7.8% growth in the previous quarter.

**GVA Outperforms GDP:**

- For the first time in a year, Gross Value Added (GVA) growth at 6.8% outpaced GDP growth.
- This shift was driven by substantial growth in the Secondary Sector, with notable contributions from Construction (10.5%), Electricity, Gas, Water Supply & Other Utilities (10.4%), and Manufacturing (7%).

**Sectoral Dynamics:**

- While the Secondary Sector showed strong performance, the services sector saw a decline.
- The 'Trade, Hotels, Transport, Communication & Services related to Broadcasting' segment grew at 5.7%, down from 9.7% in the same quarter last year. Similarly, 'Financial, Real Estate, and Professional Services' growth eased to 7.1% from 12.6% a year ago.

**Government's Perspective:**

- The slowdown as anticipated, partly due to reduced government expenditure during the general elections.
- The alignment between demand and supply sides of the economy remained strong, with private consumption and gross fixed capital formation holding up well.

**Implications:**

- The slower-than-expected GDP growth could influence the RBI's monetary policy decisions, especially as global factors like potential interest rate cuts by the U.S. Federal Reserve come into play.
- The softer growth may prompt a reevaluation of the economic outlook for the year, with the central bank previously targeting 7.2% GDP growth for 2024-25.

### Slow incline

India's real gross domestic product (GDP) rose by 6.7% in the April to June 2024 quarter, the slowest in five quarters. The graph shows the Y-on-Y % change of the real GDP.



The rise in the latest quarter is below Reserve Bank of India's expectation of a 7.1% uptick, as well as the previous quarter's growth of 7.8%.



## 6. RBI's Five Strategic Priorities for India's Financial Future

**Source:** The Economic Times

**Context:** At the Global Fintech Festival (GFF) 2024 in Mumbai, RBI Governor Shaktikanta Das outlined five strategic priorities aimed at shaping India's financial future and enhancing its position as a leading global economy.

### Financial Inclusion:

- **Initiatives:** Pradhan Mantri Jan Dhan Yojana (PMJDY) has opened over 530 million accounts, focusing on rural and semi-urban areas and benefiting women.
- **Future Focus:** Utilise technology to address financial needs in underserved regions and integrate fintech solutions.

### Enhancing Digital Public Infrastructure (DPI):

- **Objective:** Integrate advanced technologies into India's financial system.
- **Initiatives:** Launch of the Unique Lending Interface (ULI) alongside JAM trinity and Unified Payments Interface (UPI).
- **Impact:** Aims to revolutionise financial services and improve inclusion and efficiency.

### Strengthening Cybersecurity:

- **Importance:** Safeguarding digital financial services with real-time monitoring and regulatory compliance.
- **Focus:** Continuous vigilance against cyber threats and promoting cybersecurity awareness.

### Promoting Sustainable Finance:

- **Initiatives:** Sovereign green bonds and green deposits to promote sustainability.
- **Goal:** Position India as a leader in sustainable finance.

### Reinforcing Financial Infrastructure:

- **Objective:** Strengthen infrastructure, with a focus on cross-border payments.
- **Initiatives:** Global expansion of UPI and RuPay.
- **Innovation:** Cautious adoption of AI and exploration of IoT potential.

## 7. ISRO's Aditya-L1: Why was it placed around Lagrange point 1

**Source:** The Indian Express

**Context:** The Aditya-L1 mission is designed to place a satellite in a halo orbit around the Lagrange point 1 (L1) of the Sun-Earth system.



## Aditya-L1

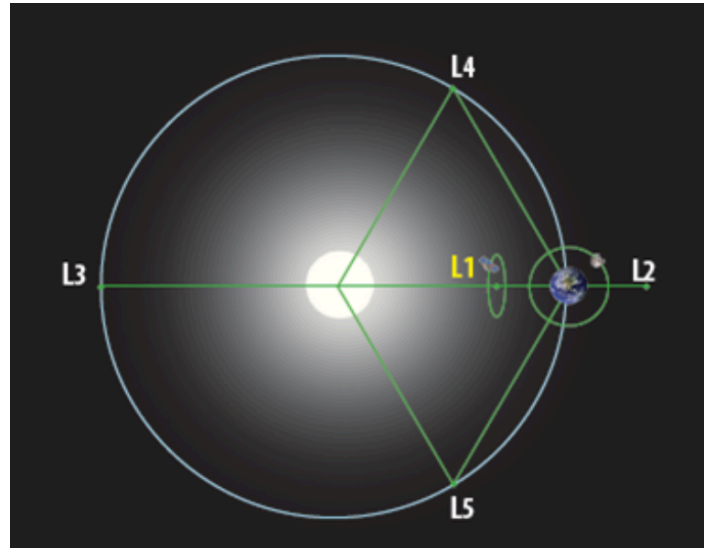
India's first solar mission, Aditya-L1, entered its halo orbit around the Sun-Earth L1 point on January 6, 2024. Launched on September 2, 2023, Aditya-L1 is positioned 1.5 million kilometres from Earth, about 1% of the Earth-Sun distance. It is ISRO's second astronomy mission, following AstroSat.

### Objective

- Aditya-L1 is dedicated to studying the Sun's outer layers: the corona, photosphere, and chromosphere.
- By being stationed at L1, it can monitor solar activities continuously without Earth's interference.

### What are Halo Orbit and Lagrange Point 1?

- **Lagrange Points:** Named after mathematician Joseph-Louis Lagrange, these are five specific positions in a three-body system where gravitational forces create stable or semi-stable points. **In the Sun-Earth system:**
  - **L1:** Positioned between Earth and the Sun, offering an uninterrupted view of the Sun.
  - **L2:** Located on the far side of Earth from the Sun, ideal for deep space observations.
  - **L3:** Directly behind the Sun from Earth's perspective, not used for space missions.
  - **L4 & L5:** Located 60 degrees ahead and behind the Earth in its orbit, respectively. These are stable and suitable for long-term missions or potential space colonies.
- **Halo Orbit:** A three-dimensional orbit around Lagrange points, halo orbits allow spacecraft to maintain a stable position with minimal fuel use. This orbit is crucial for continuous solar observation, avoiding interruptions from Earth's shadow and atmospheric interference.



### Significance of Aditya-L1's Position

- **Uninterrupted Solar Monitoring:** Provides continuous observation of the Sun without the interference of Earth's shadow.
- **Early Detection:** Enables advanced warnings for space weather events, protecting satellites and communication systems.
- **Minimal Atmospheric Influence:** Reduces the effect of Earth's atmosphere and magnetic field on solar data quality.

### Comparison with Other Missions

- **SOHO (Solar and Heliospheric Observatory):** Also in a halo orbit around L1 for continuous solar observation.
- **JWST (James Webb Space Telescope):** Positioned in a halo orbit around L2 for uninterrupted deep space observations.





Aditya-L1's mission will enhance understanding of solar phenomena, improving space weather forecasts and supporting future solar research.

## 8. INS Arighaat: India's second nuclear sub

**Source:** The Indian Express

**Context:** Induction of INS Arighaat, India's second nuclear-powered ballistic missile submarine of the Arihant class, significantly boosts India's nuclear deterrence capabilities, and strengthens its nuclear triad

### INS Arighaat

- INS Arighaat, India's second nuclear-powered ballistic missile submarine (SSBN) of the Arihant class, was commissioned into the Indian Navy on August 31, 2024.
- It follows the INS Arihant, enhancing India's nuclear triad—capability to launch nuclear missiles from air, land, and sea platforms.

### Key Features

- **Displacement:** 6,000 tonnes
- **Armament:** Indigenously built K-15 missiles with a range exceeding 700 km
- **Propulsion:** Powered by an 83 MW pressurised light-water nuclear reactor, enabling extended submerged operations without detection



### Significance

- **Nuclear Triad:**
  - INS Arighaat strengthens India's nuclear deterrence by joining INS Arihant in maintaining a credible second-strike capability.
  - India's nuclear triad includes land-based missiles (Agni series), air-launched missiles (Rafales, Su-30MKIs), and sea-based missiles (Arighaat and Arihant).
- **Technological Advancement:**
  - Arighaat is technologically superior to Arihant, featuring advanced design, manufacturing, and indigenous systems developed by Indian scientists and industry.

### Indian Navy's Submarine Fleet

- **Conventional Submarines:** 16 operational submarines, including Kilo (Sindhughosh) class, Shishumar class, and Scorpène (Kalvari) class.
- **Future Goals:** The Navy is authorised to operate 18 submarines, with INS Arighaat contributing to achieving this target. Current operational strength is affected by refits and maintenance.

**Conclusion:** The induction of INS Arighaat represents a significant enhancement of India's naval capabilities and nuclear deterrence, positioning India as a formidable player in global maritime security.



## 9. NASA Discovers Planet-Wide Electric Field Around Earth

**Source:** The Indian Express

**Context:** NASA scientists have confirmed the existence of a planet-wide electric field surrounding Earth, a discovery that fulfils a 60-year-old hypothesis. This breakthrough could provide critical insights into the evolution of our planet's atmosphere.

**Ambipolar Electric Field:**

- **Discovery:** NASA's suborbital Endurance rocket detected the ambipolar electric field for the first time, over 60 years after it was first theorized.
- **Significance:** The field is believed to be as fundamental to Earth as its magnetic and gravitational fields.

**Characteristics of the Ambipolar Electric Field:**

- **Location:** Found in the ionosphere, between 60 to 300 kilometers above Earth's surface, where ultraviolet radiation transforms atoms into ions, generating a weak electric field.
- **Polar Wind:** Earlier hints of this field were seen in the form of a "polar wind," a stream of particles escaping Earth's atmosphere at supersonic speeds without being heated, which indicated an unknown force at work.

**Endurance Rocket Mission:**

- **Objective:** To measure the electric field and understand the mysterious polar wind.
- **Data Collection:** The rocket detected a voltage change of 0.55 volts over a 518-kilometre range, strong enough to counter gravity and launch atmospheric particles into space.

**Implications for Planetary Science:**

- **Earth's Atmosphere:** Studying the ambipolar electric field will enhance understanding of how Earth's atmosphere has changed over time.
- **Extraterrestrial Research:** The discovery suggests that similar electric fields could exist in the atmospheres of other planets like Venus and Mars, offering new perspectives in planetary evolution.

**Further Research:**

- **Impact on Atmosphere:** Continued study of the electric field may reveal its role in shaping Earth's atmosphere and its potential effects on other planets.
- **Global and Cosmic Implications:** Understanding these atmospheric processes is vital for comprehending the broader dynamics of planetary systems.



## In Brief

### 10. Orcas

**Source:** The Indian Express

**Context:** Recently, a group of orcas attacked a sailboat off the coast of Spain. Since 2020, there have been over 700 recorded interactions between orcas and boats near the Strait of Gibraltar.

**Theories Behind Orca Behavior:**

- **Playful Behaviour:**
  - Some scientists believe that the orcas may be interacting with boats as a form of play, where young orcas learn and repeat new behaviours.
- **Traumatic Response:**
  - Another theory suggests that a traumatic event, such as getting tangled in fishing lines, might have triggered aggressive behaviour in orcas.
  - It is speculated that a female orca named White Gladis might have experienced such a traumatic event, leading to a change in her behaviour.

**Orcas:**

**Largest Member of Dolphin Family:** Orcas, also known as killer whales, are the largest members of the dolphin family.

**Echolocation:**

- They use echolocation to communicate and hunt. This technique, also used by bats and other animals, involves determining the location of objects through reflected sound.
- Each orca group, known as a pod, has distinctive sounds that its members can recognize even from a distance.

**Apex Predators:**

Orcas are apex predators with a diverse diet, consuming fish, penguins, seals, sea lions, and even whales, using their four-inch-long teeth to hunt.



## Daily Quiz

**Q1. Consider the following statements regarding Cyclone Asna:**

1. Cyclone Asna is the first cyclonic storm to form in the Arabian Sea during the month of August since 1964.
2. The name "Asna" was given by India and means "the one to be acknowledged or praised."
3. The formation of Cyclone Asna led to torrential rains in Gujarat, with Kutch and Saurashtra experiencing heavy to very heavy rainfall.
4. A low-pressure area associated with Cyclone Asna formed in the Bay of Bengal and is expected to move west-northwest towards the coast of Gujarat.

**Which of the above statements is/are correct?**

- A. 1 and 3 only
- B. 2 and 4 only
- C. 3 and 4 only
- D. 1, 3, and 4 only

**Q2. Consider the following statements regarding the Lakhpati Didi Sammelan:**

1. The Lakhpati Didi Sammelan is an initiative aimed at empowering rural women by ensuring that Self-Help Group (SHG) members achieve an annual income of over ₹1 lakh.
2. Under this initiative, over ₹2,500 crore has been released as a revolving fund, and ₹5,000 crore in bank loans have been disbursed to SHG members.
3. The initiative has set a target to create three crore Lakhpati Didis by providing diversified livelihood options, financial support, and market access.
4. The Lakhpati Didi Sammelan is exclusively focused on providing housing to rural women under the Pradhan Mantri Awas Yojana.

**Which of the above statements is/are correct?**

- A. 1, 2, and 3 only
- B. 1 and 4 only
- C. 2 and 3 only
- D. 1, 3, and 4 only

**Q3. Consider the following statements regarding the recent formation of new districts in Ladakh:**

1. The Ministry of Home Affairs has granted "in-principle approval" for the creation of five new districts in Ladakh, increasing the Union Territory's total districts to seven.
2. The new districts include Zaskar, Drass, Sham, Nubra, and Changthang.
3. The creation of these districts is aligned with the Prime Minister's Development Package (PMDP) for Ladakh.
4. The power to create, alter, or abolish districts in Union Territories lies solely with the Ministry of Home Affairs, unlike in States where the power lies with State governments.

**Which of the statements given above are correct?**

- A. 1 and 2 only
- B. 1, 2, and 3 only
- C. 3 and 4 only
- D. 1, 2, 3, and 4

**Q4. Consider the following statements regarding the recent government advisory on joint bank accounts for LGBTQIA+ couples:**

1. The Union government has issued an advisory permitting LGBTQIA+ couples to open joint bank accounts and nominate each other as beneficiaries.
2. This advisory follows a Supreme Court directive from October 2023, which recognized same-sex marriages in India.



3. Some private banks in India had already allowed LGBTQIA+ couples to open joint accounts and nominate beneficiaries before the government issued this advisory.

Which of the statements given above are correct?

- A. 1 and 2 only
- B. 1 and 3 only
- C. 2 and 3 only
- D. 1, 2, and 3

**Q5. How did the slower GDP growth in Q1 FY2024 impact the Reserve Bank of India's (RBI) monetary policy outlook?**

- A. It led to an increase in interest rates
- B. It had no effect on monetary policy
- C. It could prompt a reevaluation of the economic outlook and monetary policy
- D. It resulted in immediate fiscal stimulus measures

**Q6. Which of the following are part of the five strategic priorities outlined by the RBI Governor at the Global Fintech Festival (GFF) 2024 to shape India's financial future?**

- 1. Enhancing Digital Public Infrastructure (DPI)
- 2. Strengthening Cybersecurity
- 3. Promoting Cryptocurrency Adoption
- 4. Promoting Sustainable Finance

Select the correct option given below :

- A. 1, 2, and 3 only
- B. 1, 3, and 4 only
- C. 1, 2, and 4 only
- D. 2, 3, and 4 only

**Q7. Which of the following space missions is also placed in a halo orbit around a Lagrange Point, similar to Aditya-L1?**

- A. Chandrayaan-2
- B. Mangalyaan
- C. JWST (James Webb Space Telescope)
- D. Voyager 1

**Q8. What is the primary significance of INS Arighaat for India's defence strategy?**

- A. It enhances India's air defence capabilities.
- B. It is the first Indian submarine capable of launching conventional missiles.
- C. It is the largest aircraft carrier in the Indian Navy.
- D. It strengthens India's nuclear deterrence by contributing to the nuclear triad.

**Q9. What potential future research areas could be influenced by the discovery of the ambipolar electric field around Earth?**

- A. Exploration of new exoplanets
- B. Understanding atmospheric processes on other planets
- C. Development of new space travel technologies
- D. Study of Earth's seismic activity

**Q10. Which of the following is NOT typically included in the diet of orcas?**

- A. Fish
- B. Penguins
- C. Seals
- D. Dolphins



## Solution

### 1. Correct Answer is A

#### Explanation:

- **Statement 1: Correct:** Cyclone Asna is indeed the first cyclonic storm to form in the Arabian Sea in August since 1976. Prior cyclonic storms in August occurred in 1976, 1964, and 1944.
- **Statement 2: Incorrect:** The name "Asna" was given by Pakistan, not India, and it means "the one to be acknowledged or praised."
- **Statement 3: Correct:** Cyclone Asna led to torrential rains in Gujarat, particularly in Kutch and Saurashtra, which experienced heavy to very heavy rainfall.
- **Statement 4: Incorrect:** While a low-pressure area did form in the Bay of Bengal, it is expected to move towards the north Andhra Pradesh and south Odisha coasts, not towards Gujarat.

### 2. Correct Answer is A

#### Explanation:

- **Statement 1: Correct:** The Lakhpati Didi Sammelan aims to empower rural women by ensuring that Self-Help Group (SHG) members achieve an annual income of over ₹1 lakh.
- **Statement 2: Correct:** The initiative has provided significant financial support, with ₹2,500 crore released as a revolving fund and ₹5,000 crore in bank loans disbursed to SHG members.
- **Statement 3: Correct:** The initiative has set a target to create three crore Lakhpati Didis by providing diversified livelihood options, financial support, and market access.

- **Statement 4: Incorrect:** The Lakhpati Didi Sammelan focuses on women's economic empowerment through SHGs and is not exclusively focused on providing housing under the Pradhan Mantri Awas Yojana, though related initiatives such as Mission Shakti and Pradhan Mantri Mudra Yojana may be involved in broader empowerment efforts.

### 3. Correct Answer is B

#### Explanation:

- **Statement 1 is correct:** The Ministry of Home Affairs has indeed granted "in-principle approval" for the creation of five new districts in Ladakh, raising the total number of districts from two to seven.
- **Statement 2 is correct:** The five newly proposed districts are Zaskar, Drass, Sham, Nubra, and Changthang.
- **Statement 3 is correct:** The creation of these new districts aligns with the Prime Minister's Development Package (PMDP), which aims to enhance infrastructure and development in the region.
- **Statement 4 is incorrect:** While the Ministry of Home Affairs has the authority in Union Territories, the power to create, alter, or abolish districts in Indian States typically lies with the respective State governments. In the context of Union Territories like Ladakh, the process involves both central and local considerations but is not exclusively within the purview of the Ministry of Home Affairs.



without local governance involvement.

**4. Correct Answer is B**

**Explanation:**

- **Statement 1 is correct:** The Union government has indeed issued an advisory allowing LGBTQIA+ couples to open joint bank accounts and nominate each other as beneficiaries.
- **Statement 2 is incorrect:** The Supreme Court's October 2023 judgment did not recognize same-sex marriages but urged the government to ensure equal entitlements for LGBTQIA+ couples. The advisory aligns with this directive.
- **Statement 3 is correct:** Some private banks, such as Axis Bank, had already permitted LGBTQIA+ couples to open joint accounts and nominate beneficiaries since September 2021, ahead of the government advisory.

**5. Correct Answer is C**

**Explanation:**

- **Slower GDP Growth:** In Q1 FY2024, India's real GDP growth slowed to 6.7%, which was below the Reserve Bank of India's (RBI) expectation of 7.1%. This slowdown marked the lowest growth rate in five quarters.
- **Impact on Monetary Policy:** The GDP growth rate is a critical indicator of the economy's health. When growth slows down unexpectedly, it can lead to concerns about the economy's overall strength and future prospects.
- **Reevaluation of Economic Outlook:** Given the

slower-than-expected growth, the RBI might need to reassess its economic projections and the strategies it plans to implement. The RBI's previous target for GDP growth was 7.2% for the fiscal year 2024-25, and the current data might lead them to reconsider this target.

- **Global Factors:** Additionally, global economic factors, such as potential interest rate cuts by the U.S. Federal Reserve, could influence the RBI's decision-making process. If global economic conditions lead to changes in interest rates abroad, the RBI might need to adjust its own policies to maintain economic stability and competitiveness.

**6. Correct Answer is C**

**Explanation:**

At the Global Fintech Festival (GFF) 2024, RBI Governor Shaktikanta Das outlined five strategic priorities:

- **Enhancing Digital Public Infrastructure (DPI):** This includes integrating advanced technologies into India's financial system, such as the launch of the Unique Lending Interface (ULI) alongside the JAM trinity and UPI.
- **Strengthening Cybersecurity:** Emphasises the importance of safeguarding digital financial services with real-time monitoring and regulatory compliance to counteract cyber threats.
- **Promoting Sustainable Finance:** Involves initiatives like sovereign



green bonds and green deposits to position India as a leader in sustainable finance.

**7. Correct Answer is C**

**Explanation:**

- **Lagrange Points:** Positions in space where the gravitational forces of two large bodies, like Earth and the Sun, create equilibrium for a smaller object. The Earth-Sun system has five Lagrange Points (L1, L2, L3, L4, L5), each offering strategic advantages for space missions.
- **Halo Orbits:** Three-dimensional, periodic orbits around Lagrange Points, enabling spacecraft to remain stable with minimal fuel consumption for continuous observation or communication.
- **Aditya-L1:** A mission positioned in a halo orbit around Lagrange Point 1 (L1) to continuously observe the Sun without Earth's shadow, crucial for solar studies.
- **JWST (James Webb Space Telescope):** Stationed at Lagrange Point 2 (L2), JWST's halo orbit allows deep space observation without interference from Earth, Moon, or Sun.
- **Comparison:** Both Aditya-L1 and JWST use halo orbits around Lagrange Points (L1 for Aditya-L1 and L2 for JWST) to achieve stable, fuel-efficient observation platforms—Aditya-L1 for solar monitoring, JWST for deep space exploration.

**8. Correct Answer is D**

**Explanation:**

- INS Arighaat plays a crucial role in strengthening India's nuclear deterrence by being part of the country's nuclear triad.
- The nuclear triad is the capability to launch nuclear weapons from land, air, and sea, ensuring a credible second-strike capability.

**9. Correct Answer is B**

**Explanation:**

**Role of Ambipolar Electric Fields:**

- Ambipolar electric fields help balance the motion of positive and negative charges in a plasma. In planetary atmospheres, such fields can influence the behavior and distribution of charged particles, affecting various atmospheric processes.

**Application to Other Planets:**

- **Venus:** The atmosphere of Venus is dense and includes a significant amount of charged particles. Understanding ambipolar electric fields can shed light on how these fields influence atmospheric dynamics, such as the distribution of particles and energy transfer.
- **Mars:** Mars has a thinner atmosphere with varying levels of ionisation. Studying ambipolar electric fields can help explain how they affect the Martian atmosphere, including atmospheric loss and the interaction of solar wind with the atmosphere.

**Implications for Research:**

- **Atmospheric Dynamics:** By studying ambipolar electric fields on Earth, scientists can apply similar principles to understand how such fields might operate in the atmospheres of other planets. This can lead to better models of





atmospheric behavior and processes.

- **Planetary Evolution:** Insights into how electric fields affect atmospheric particles can provide clues about the evolution and current state of planetary atmospheres. This can help explain phenomena such as atmospheric retention or loss over

geological timescales.

**10. Correct Answer is D**

**Explanation:**

- Orcas, being apex predators, have a diverse diet that includes fish, penguins, seals, and sea lions.
- They use their four-inch-long teeth to hunt, but dolphins are not typically listed as part of their diet.





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